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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,259	01/07/2004	Akihiko Aoyagi	HSJ920030192US1	6713

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EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	**PAPER NUMBER**
3729	

MAIL DATE	DELIVERY MODE
10/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/753,259	AOYAGI ET AL.	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,20 and 22-29* is/are pending in the application.

4a) Of the above claim(s) *20,23 and 25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,22,24 and 26-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 13, 2007 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claim 20 continues to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 19, 2006.

4. Applicant's election with traverse of the invention of Species A, Figure 3, in the reply filed on August 13, 2007 is acknowledged. The traversal is on the ground(s) that claims 23 and 25 are many variations of Figure 3 and thus, should be examined along with Claim 13. This is not found persuasive because Claim 13 is a generic claim and the features of Claims 23 and 25 are each distinct enough that requires completely different lines of patentability. The applicant(s) admission that Claims 23 and 25 are variations of Figure 3 means that they are each different species. Furthermore, the features of Claims 23 and 25 are not even shown in the elected invention of Species A, Figure 3.

The requirement is still deemed proper and is therefore made FINAL.

5. Claims 23 and 25 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 13, 2007.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 27, it is unclear if the phrase of "a flange" (lines 1-2) is referring to the previous recitation of "a flange" (line 3 of Claim 13). How many flanges are there? The examiner presumes that both recitations are referring to the same flange.

Claim Rejections - 35 USC § 103

8. Claims 13, 22, 24, 26, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the AAPA, Muraki et al, and Kitahara et al.

The AAPA (page 1-2 of the specification and Prior Art Figures 1 and 2) discloses a method of assembling an actuator system comprising: positioning a lower bearing (e.g. 24) having an inner race and an outer race, on a flange (e.g. 29), where the flange supports the inner

race in an axial direction relative to a shaft (e.g. 28); placing an actuator arm (e.g. 12) on the outer race of the lower bearing; and placing an upper bearing (e.g. 26) on the shaft, the upper bearing having an inner race and an outer race. The AAPA also teaches applying an adhesive and curing the adhesive, but the AAPA applies the adhesive between an outer race of the upper bearing and a sleeve.

Regarding Claim(s) 22, 24, 27 and 28, the AAPA further teaches that the upper and lower bearings (e.g. 26, 24) have equivalent inner bores and equivalent outer diameters, as well as a flange (e.g. 29) to retain the lower bearing and a gap (region between bearings in Fig. 2) between the actuator arm and the shaft.

The AAPA does not specifically teach that the actuator arm is in contact with the outer race of the lower bearing, applying an adhesive between the inner race of the upper bearing and the shaft, applying an axial preload force to the inner race of the upper bearing; and curing the adhesive and releasing the preload force.

Muraki shows that in actuator arm systems (e.g. in Fig. 5), an actuator arm (e.g. 5) can be assembled without any sleeve such that the upper bearing (e.g. 3) and lower bearing (e.g. 4) are directly received by the shaft (e.g. 2). The actuator arm of Muraki is in direct contact with the outer race of the lower bearing, as the outer race supports the actuator arm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the actuator arm system of the AAPA by having the actuator arm be in direct contact with the outer races of the upper and lower bearings with no sleeve, as taught by Muraki, to positively provide ease in manufacturing by excluding at least one less manufacturing part, i.e. the sleeve, and provide extra support of the actuator arm with the lower bearing.

Kitahara shows that it is conventional in the art of manufacturing shafts with bearings to apply an adhesive between an inner race (e.g. 57 in Fig. 9) of an upper bearing (e.g. 56) and a shaft (e.g. 72), apply an axial preload force (e.g. F in Fig. 9) to the inner race of the upper bearing, cure the adhesive, and release the preload force. The purpose of utilizing such manufacturing steps above is to minimize vibration in the bearings and provide a force to the upper bearing to allow the adhesive to be applied and cured so that the inner race is secured to the shaft (all of above of which is discussed at col. 7, lines 44+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA by adding such manufacturing steps of applying an adhesive between the inner race of the upper bearing and the shaft, applying an axial preload force to the inner race of the upper bearing; curing the adhesive and releasing the preload force, as taught by Kitahara, for the advantages of minimizing vibration in the bearings and securing the inner race is to the shaft.

9. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the AAPA, Muraki et al, and Kitahara et al, as applied to Claim 13 above, and further in view of Sakuragi.

The AAPA, as modified by Kitahara and Muraki, discloses the claimed manufacturing method as relied upon above in Claim 13. The modified AAPA method does not teach that the shaft has a threaded hole in the top of the shaft.

Sakuragi shows that it is known to provide a threaded hole (see Fig. 3) in the top of the shaft (e.g. 101) for the purpose of enclosing the actuator arm system within a housing (e.g. cover plate 127) by connecting the housing to the shaft through a fastener.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the AAPA by providing a threaded hole in the top of the shaft, as taught by Sakuragi, for the purpose of enclosing the actuator arm system so that the system is protected from the environment during operation.

Response to Arguments

10. The applicant(s) arguments filed on August 13, 2007 have been fully considered but they are not persuasive.

The applicant(s) assert that the prior art does not teach "positioning...lower bearing" (lines 3-7 of Claim 13).

The examiner most respectfully disagrees. The AAPA shows a flange (e.g. 29) and a lower bearing (e.g. 24) is positioned "on" the flange. Furthermore, the flange of the AAPA supports an upper surface of the inner race in an axial direction. It is well worth noting that the claim does not recite any relationship (i.e. specific location) between the flange and the lower bearing, so the lower bearing is "on" the flange and "supports" the inner race in an axial direction thereby meeting the limitations of "positioning...a shaft" (lines 3-5 of Claim 13).

The feature of placing the actuator arm on the outer race of the lower bearing such that the actuator arm is in contact with the outer race of the lower bearing is relied upon in Muraki et al. Both the Muraki and the AAPA solve the very same problems of assembling actuator arms to upper and lower bearings where Muraki eliminates the use of a sleeve. Thus, the modification of the AAPA in light of the teachings of Muraki are obvious, if not for the advantages of what Muraki teaches, then for reason the each is solving the very same manufacturing problems.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729

October 25, 2007